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Research Letter

Bipolar cord coagulation for selective feticide in a monochorionic twin pregnancy complicated by pentalogy of Cantrell

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Dear Editor,

We present a 32-year-old primigravida with no history of hereditary diseases or malformations in the family. The patient did not have any diseases. Her surgical history included an hysteroscopic myomectomy and an appendectomy.

The patient came to our center to have her pregnancy controlled in the high-risk obstetric area where she was diagnosed as having a monochorionic diamniotic spontaneous twin pregnancy. A routine first trimester ultrasound during week 11 +2 revealed a monochorionic diamniotic twin pregnancy. The growth of both fetuses corresponded to their gestational age.

During the anatomical examination of one fetus, the following findings were observed: increased thickness of nuchal translucency (5 mm), omphalocele, and ectopia cordis (Figs. 1–3). The cardiac anatomy impressed normal, a nasal bone was observed. There was an A wave in the ductus venosus and no evidence of tricuspid regurgitation. The other fetus had a normal anatomy. The patient was informed that one fetus had a suspected case of pentalogy of Cantrell.

Seven days later, she was called for a reassessment. At 7 days, the following findings were observed in the fetus' cardiac anatomy (Fig. 4): aortic override, interventricular communication, and retrograde filling of the pulmonary artery. (These findings suggested tetralogy of Fallot.)

Amniocentesis was performed on both amniotic sacs for chromosomal studies. The results were normal for both fetuses (i.e., 46, XY/46, XY).

We proposed to the patient the possibility of performing a selective feticide of the affected twin by means of ultrasound-guided bipolar cord coagulation. The patient agreed to the procedure, which was performed during week 17 +5. The procedure was uneventful.

The rest of the pregnancy developed normally. A cesarean section was performed during week 36 because of labor and breech presentation. The cesarean section was uneventful. A 2420-g male was born and the Apgar score was 9/10. At 18 months the infant had no abnormalities in anatomy and had normal neurosensory development.

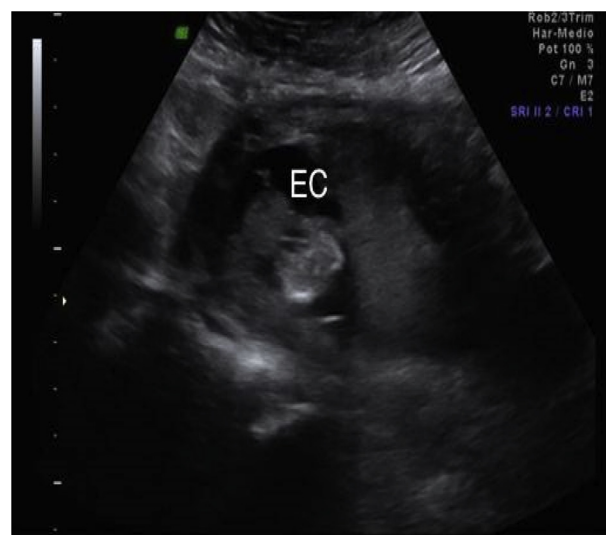


Figure 1. Axial section of the fetal thorax. The defect is visible in the anterior wall with displacement of the heart to the surface of the thorax (EC).

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Figure 2. Sagittal section through the fetal body. There is an absence of the anterior wall of the abdomen associated with the fetal omphalocele (Om).

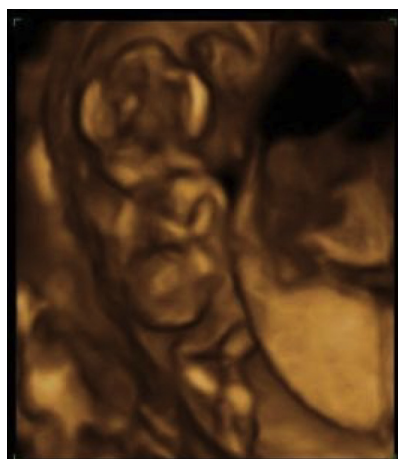


Figure 3. A three-dimensional image of the fetus affected by pentalogy of Cantrell.

Fetal malformations in monochorionic pregnancies occur in 3% of twin pregnancies [1], and in 80% of these pregnancies, malformations will be present in only one of the fetuses [2,3]. The presence of a severe malformation in one of the fetuses is a considerable problem because situations may arise that jeopardize the health of the healthy twin by increasing the risk of prematurity (e.g., polyhydramnios, preterm premature rupture of membranes) or neurological injury (e.g., fetal exsanguination of the healthy twin after the sudden death of the malformed twin). Physicians also have to take into account the anxiety of parents facing having a child with a serious malformation that could be born alive, and the anxiety generated by an increase in morbidity and mortality of the healthy fetus in the presence of a discordant malformation in the other fetus [4].

When managing a monochorionic pregnancy, the technique for selective feticide rules out the use of the fetal cord injection of potassium chloride because the healthy twin could be affected through placental vascular anastomoses [5]. Therefore selective feticide of one fetus in monochorionic pregnancies is performed by methods that produce cord occlusion, and thus avoid the eventual exsanguination of the surviving fetus into the dead fetus [6]. Bipolar coagulation cord may be the technique of choice because of the short surgery duration and because it avoids septum disruption with subsequent reduced risk of cord entanglement and amniotic band syndrome [7].

Selective feticide in complicated monochorionic pregnancies is associated with an overall survival of 88.9%–76.5%, whereas stillbirth account for 5.5%–5.8% [8]. Neonatal morbidity is primarily represented by neurological damage and injury secondary to prematurity; it occurs in 7% of the survivors. Studies indicate a greater tendency toward survival when feticide is performed beyond the 18th week of gestation [7]. In the current patient, it was not possible to wait until week 18, because the she had great anxiety

Ao, aorta; IVS, interventricular septum; LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle.

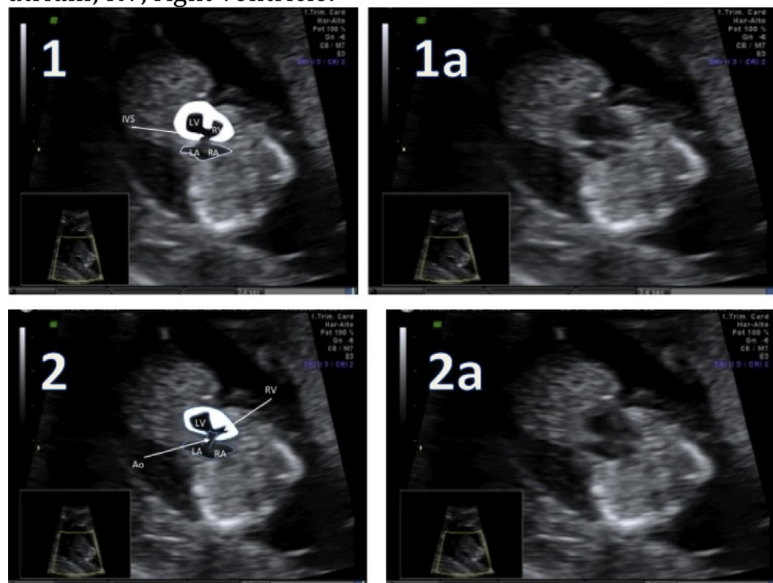


Figure 4. Axial section of the fetal thorax. Features of the abnormal cardiac anatomy are the following: interventricular communication (panels 1 and 1a), aortic override (panels 2 and 2a), and retrograde filling of the pulmonary artery. These findings suggest tetralogy of Fallot.

associated with the intervention. The possibility of a selective feticide should be regarded as a useful tool in cases of monochorionic twin pregnancies complicated by severe malformation in one fetus.

Conflicts of interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest (e.g., honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or nonfinancial interest (e.g., personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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